

III. REMARKS

1. Claims 1, 6-10, 12, 17-21, 23-24, and 29 are not anticipated under 35 U.S.C. 102(b) over Wood.

The claims are directed to methods and apparatus for solving the problem of audio shock when attempting to decode a bad speech frame or a good speech frame that is disordered due to, e.g., incorrect input parameters to a decryption apparatus. To solve this problem, Applicant recites checking the channel decoding and checking whether the speech frame has decodable speech **only** from at least one speech parameter and **not from using channel codes**. Neither of these features are disclosed or suggested by Wood.

In Applicant's invention, speech to be transmitted in a radio system is coded in a transmitter by a speech decoder [0002]. The digital speech information is channel-coded in a transmitted to prevent the adverse effects cause by the noise on the radio path. Channel codes may be error detecting and/or error-correcting codes [0003]. Information can not only be channel-coded, but also encrypted to prevent tapping. Encryption may be performed either prior to or after channel coding [0004].

In some cases, when the bits of a speech frame suitably invert on the radio path, the speech frame no longer contains acceptable data that could be decoded by a speech decoder. Although, on the basis of "channel-code" decoding, the speech frame may be free of defects [0006].

Thus, in Applicant's invention, as recited in the claims, even if the speech frame is free of defects on the basis of "channel-code" decoding, at least one speech parameter in the channel decoded speech frame is examined, and on the basis of this examination, it is determined whether it is advantageous to attempt to decode the speech frame using a speech decoder. This avoids audio shock because the capability of the channel decoding is not solely relied upon to detect errors. On the other hand, if the decryption is

performed in the system after the channel decoding, studying the parameters in the channel-decoded and decrypted speech frame also prevents a possible audio shock in a situation where the channel-decoded speech frame was free of defects, but the decryption placed the contents of the speech frame in disorder.

Wood discloses bad frame detection in a communication system and describes a way to improve the detection of bad frames, i.e., BFI (Bad Frame Indicator). BFI is detected with a CRC (Cyclic Redundancy Check) calculation. In addition, channel decoding and re-encoding are also performed. By comparing the decoded and re-encoded bits, a SER (Symbol Error Rate) is obtained. The SER is then compared with a threshold (there can exist multiple bit correction thresholds, i.e., the threshold is dynamic), so that it can be decided whether a BFI bit should be sent on. Wood describes as a problem that the CRC calculation alone, in connection with a single threshold, is sufficient for BFI determination.

Wood does not recognize the audio shock problem addressed by Applicant since Wood is rather directed to the problem of BFI sensitivity (column 2, lines 20-23). Wood also does not disclose or suggest the two successive checks claimed by Applicant (checking of channel decoding in step 506, and checking whether a speech frame contains decodable speech in steps 508 and 510 using a speech parameter and not other channel codes). Wood mainly deals with dynamic bit correction thresholds that improve the performance of the transfer channel.

A situation occurs in Wood when there are no speech frames transmitted at all during discontinuous transmission (DTX), for example, when there is no speech present to be transmitted. This is not what is claimed by Applicant, where it is inferred from the value of at least one speech parameter in the channel decoded speech frame whether the speech frame contains speech that is decodable by means of a speech decoder from other than the channel codes. In Wood, channel decoding and speech decoding are done normally, i.e., if the channel decoding in the channel decoder (reference numeral 202) is successful, it is considered that the speech frames contain decodable speech that may be decoded by the speech decoder (reference numeral 207). Speech frame

substitution block (reference numeral 205) takes care of situations when a frame is lost. However, in Applicant's invention, if the speech frame is free of defects on the basis of the channel decoding, the block 506 is followed by a block 508, as indicated by arrow 522. In the block 508, it is inferred from the value of at least one speech parameter in the channel decoded speech frame whether the speech frame contains speech that is decodable by a speech decoder. In TETRA, for example, a "speech parameter" refers to parameters produced by an ACELP codec, as shown in Table 1 [0080].

In Wood the speech frame is considered always to be decodable by a speech decoder, if the "channel decoding" indicates that the frame is acceptable. This is not what is claimed by Applicant. Applicant claims inferring from the value of at least one "speech parameter" in the channel-decoded speech frame whether the speech frame contains speech that is decodable by means of a speech decoder. One of skill in the art will understand that "channel-codes" and "speech parameters" are different. A speech frame includes speech parameters and a speech frame is channel-coded. As claimed by Applicant, first the channel codes are checked. If the speech frame is free of defects on the basis of the channel-decoding, only then are the "speech parameters" examined to determine whether the speech frame contains speech that is decodable by means of a speech decoder. Wood does not disclose or suggest using only speech parameters and not channel codes as is claimed by Applicant.

Also, in the Office Action, the Examiner seems to imply that CRC mechanism 402 of Wood is equivalent to the feature of Applicant's claim, inferring from the value of at least one speech parameter in the channel-decoded speech frame whether the speech frame contains speech that is decodable by means of a speech decoder. This interpretation is reiterated by the comments of the Examiner with respect to claim 29, namely that the CRC, SEC and SER are all speech parameters. It is respectfully submitted that this is not true. CRC is only a Cyclic Redundancy Check codeword, not a speech parameter. In paragraph [0003] of the application the channel codes are explained and CRC is included with channel codes. One of skill in the art will recognize that channel codes and speech parameters are not the same. As noted by Applicant, in TETRA, for example, a "speech

parameter” refers to parameters produced by an ACELP codec, as shown in Table 1 [0080].

Thus, the rejection of claims 1, 6-10, 12, 17-21, 23-24 and 29 under 35 U.S.C. 102 should be withdrawn.

Further, since the above-discussed features are not suggested by Wood, these claims are not obvious over Wood.

2. Claims 25-28 are not unpatentable under 35 U.S.C. 103(a) over Wood in view of Official Notice. Since the above-discussed features are not known in the art, Official Notice cannot be taken of them. Thus, combining Wood with Official Notice does not result in the claimed invention, and hence this rejection should be withdrawn. Applicant respectfully traverses the rejection and request that the Examiner provide evidentiary support for the assertion of Official Notice, since it is to be “judiciously applied” see MPEP §2144.03.

3. Claims 2-5 and 13-16 are not unpatentable under 35 U.S.C. 103(a) over Wood, and further in view of Dunlop.

Since Dunlop fails to disclose the above-discussed features, combining it with Wood does not result in the features of claims 2-5 and 13-16. Thus the rejection of these claims should be withdrawn.

4. Claims 11 and 22 are not unpatentable under 35 U.S.C. 103(a) over Wood in view of Lagerqvist.

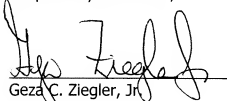
Similarly, since Lagerqvist does not disclose the above features, combining it with Wood does not result in the features recited in claims 11 and 12. Thus the rejection of these claims should be withdrawn.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and

allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

The Commissioner is hereby authorized to charge payment of \$120.00 for a one-month extension of time and any fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,


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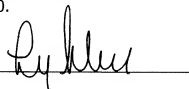
7 July 2006
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